



# **STIC Search Report**

## **Biotech-Chem Library**

STIC Database Tracking Number: 138337

**TO: Rei-Tsang Shiao**  
**Location: 5a10 / 5c18**  
**Art Unit: 1626**  
**Wednesday, December 01, 2004**

**Case Serial Number: 09/869088**

**From: Noble Jarrell**  
**Location: Biotech-Chem Library**  
**Rem 1B71**  
**Phone: 272-2556**

**Noble.jarrell@uspto.gov**

### **Search Notes**

Scientific and Technical Information Center

Requester's Full Name: Robert (Randy) Shaw Examiner #: 77521 Date: 11/19/04  
Art Unit: 1626 Phone Number: 202-0907 Serial Number: 09/869088  
Mail Box and Bldg/Room Location: 5A10/5C18 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched, include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

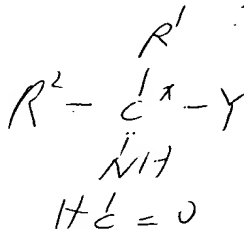
Title of invention: Process for the enzymatic

Inventors (please provide full names): Quedfleg et al

Earliest Priority Filing Date: \_\_\_\_\_

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

I search a process of making



1.  $R'$  is alkyl or aryl
2.  $R^2$  is H, alkyl, aryl
3.  $Y$  is alkyl, aryl,  
(CH<sub>2</sub>)<sub>n</sub>COOH, (CH<sub>2</sub>)<sub>n</sub>-COOR,  
(CH<sub>2</sub>)<sub>n</sub>-CONRR', CH<sub>2</sub>OH, or  
C≡N. (see claim 1)

by reacting an enzyme, metal

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>Noble</u>	NA Sequence (#) _____	STN <u>328</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>✓</u>	Quaker Cabit _____
Date Search Requested: _____	Bibliographic <u>✓</u>	Dr. Link _____
Date Complete: <u>Dec 1, 2004</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>10</u>	Fulltext _____	Sequence Systems _____

=&gt; d his

(FILE 'HOME' ENTERED AT 09:03:55 ON 01 DEC 2004)

FILE 'HCAPLUS' ENTERED AT 09:04:05 ON 01 DEC 2004

E EP1998-204371/APPS  
 E EP98-204371/APPS  
 L1 1 EP98-204371/APPS  
 E WO1999-NL00783/APPS  
 E WO99-NL00783/APPS  
 E WO99-NL783/APPS  
 L2 1 WO99-NL783/APPS  
 L3 1 L1-2

FILE 'REGISTRY' ENTERED AT 09:06:39 ON 01 DEC 2004

FILE 'HCAPLUS' ENTERED AT 09:06:41 ON 01 DEC 2004  
 L4 TRA L3 1- RN : 23 TERMS

FILE 'REGISTRY' ENTERED AT 09:06:41 ON 01 DEC 2004  
 L5 23 SEA L4

FILE 'WPIX' ENTERED AT 09:06:45 ON 01 DEC 2004  
 L6 1 (EP98-204371 OR WO99-NL783)/AP,PRN

=&gt; b hcap

FILE 'HCAPLUS' ENTERED AT 09:07:37 ON 01 DEC 2004  
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FILE COVERS 1907 - 1 Dec 2004 VOL 141 ISS 23  
 FILE LAST UPDATED: 29 Nov 2004 (20041129/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L3 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2000:441465 HCAPLUS  
 DN 133:57691  
 ED Entered STN: 30 Jun 2000  
 TI Manufacture of amino acid derivatives with increased optical purity using peptide deformylases  
 IN Quaedflieg, Peter Jan Leonard Mario; Sonke, Theodorus; Wagner, Adolf Fritz Volker  
 PA DSM N.V., Neth.  
 SO Eur. Pat. Appl., 11 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C12N015-55  
 ICS C12P013-04; C12P041-00  
 CC 16-5 (Fermentation and Bioindustrial Chemistry)  
 Section cross-reference(s): 7  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1013769	A1	20000628	EP 1998-204371	19981222 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	WO 2000037657	A1	20000629	WO 1999-NL783	19991217 <--
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,				

Search done by Noble Jarrell

CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1141333 A1 20011010 EP 1999-962575 19991217 <--  
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 JP 2002533086 T2 20021008 JP 2000-589711 19991217 <--  
 PRAI EP 1998-204371 A 19981222 <--  
 WO 1999-NL783 W 19991217 <--

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1013769	ICM	C12N015-55
	ICS	C12P013-04; C12P041-00
EP 1013769	ECLA	C12P013/04; C12P041/00D2 <--
WO 2000037657	ECLA	C12P013/04 <--

OS MARPAT 133:57691

AB A process for the preparation of chiral compound R1R2C(NH2)Y [I; R1 = alkyl, aryl; R2 = H, R1; Y = alkyl, aryl, (CH2)nCOOH, (CH2)n-COOR, (CH2)n-CONRR', CH2OH, or CN (R and R' = independently H, alkyl, aryl; n = 0, 1)] with improved optical purity from an enantiomeric mixture of I using a peptide deformylase activity with a bivalent metal ion as a cofactor wherein the metal is chosen from the groups 5-11 of the periodic table. Alternatively, the enzyme can be used to prepare optically pure formyl esters using a formyl group donor. Preferably the peptide deformylase is chosen from the class EC 3.5.2.27 or EC 3.5.1.31, and contains the sequences of (i) HEXXH, (ii) EGCLS and (iii) GXGXAAXQ. The bivalent metal may be chosen from the group of Fe, Ni, Mn and Co, preferably Ni or Fe. Expts. with a range of formyl esters yielded amino acid derivs. with ee's of 90-100%.

ST peptide deformylase amino acid chiral prepn formyl deriv

IT Resolution (separation)  
 (enzymic, of formyl derivs. of amino acids; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT Amino acids, preparation  
 RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
 (manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT Escherichia coli  
 (peptide deformylase of; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 14701-22-5, Nickel dication, biological studies 15438-31-0, Ferrous ion, biological studies 16397-91-4, Manganese dication, biological studies 22541-53-3, Cobalt dication, biological studies  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (as cofactor for peptide deformylase; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 2130-87-2 23950-49-4 27395-18-2 64505-48-2 67421-74-3 126575-05-1 148054-73-3 276704-12-2 276874-36-3 276874-37-4 276874-38-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (enzymic resolution of; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 9001-05-2, Catalase  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (for stabilization of peptide formylases; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 9032-86-4, Peptide deformylase 9054-98-2, Peptide deformylase 37289-08-0, Peptide deformylase  
 RL: CAT (Catalyst use); USES (Uses)  
 (manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 64-18-6DP, Formic acid, amides, esters, preparation  
 RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
 (preparation of optically active; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 276874-39-6 278170-20-0 278170-21-1  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
 (protein motif of peptide formylases; manufacture of amino acid derivs. with

increased optical purity using peptide deformylases)

=> b reg

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Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 29 NOV 2004 HIGHEST RN 790629-40-2  
DICTIONARY FILE UPDATES: 29 NOV 2004 HIGHEST RN 790629-40-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more  
information enter HELP PROP at an arrow prompt in the file or refer  
to the file summary sheet on the web at:  
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d ide l5 tot

L5 ANSWER 1 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 278170-21-1 REGISTRY  
CN Peptide, (Gly-Xaa-Gly-Xaa-Ala-Ala-Xaa-Gln) (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 3: PN: W00037486 PAGE: 33 claimed protein  
FS PROTEIN SEQUENCE  
DR 277748-13-7, 278783-41-8  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS, USPAT2, USPATFULL  
DT.CA Caplus document type: Patent  
RL.P Roles from patents: BIOL (Biological study); PRP (Properties); USES  
(Uses)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
3 REFERENCES IN FILE CA (1907 TO DATE)  
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 2 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 278170-20-0 REGISTRY  
CN Peptide, (His-Glu-Xaa-Xaa-His) (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 1: PN: W00037486 PAGE: 33 claimed protein  
FS PROTEIN SEQUENCE  
DR 277748-12-6, 278783-40-7, 288149-11-1, 344595-79-5  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS, TOXCENTER, USPAT2, USPATFULL  
DT.CA Caplus document type: Patent  
RL.P Roles from patents: BIOL (Biological study); PRP (Properties); USES  
(Uses)

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

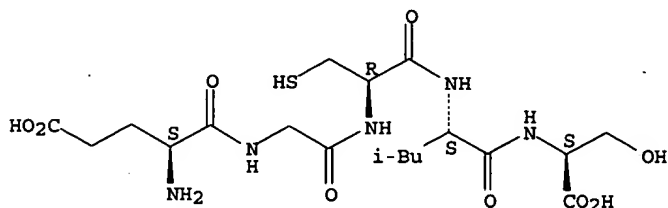
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\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
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5 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 3 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 276874-39-6 REGISTRY  
CN L-Serine, L-.alpha.-glutamylglycyl-L-cysteinyl-L-leucyl- (9CI) (CA INDEX  
NAME)  
OTHER NAMES:

Search done by Noble Jarrell

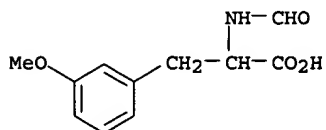
CN 10: PN: US20040202644 SEQID: 10 unclaimed sequence  
 CN 2: PN: WO0037486 PAGE: 33 claimed protein  
 FS PROTEIN SEQUENCE; STEREOSEARCH  
 MF C19 H33 N5 O9 S  
 SR CA  
 LC STN Files: CA, CAPLUS, USPAT2, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: BIOL (Biological study); PRP (Properties); USES (Uses)

Absolute stereochemistry.



4 REFERENCES IN FILE CA (1907 TO DATE)  
 4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

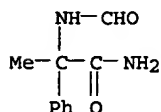
L5 ANSWER 4 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 276874-38-5 REGISTRY  
 CN Phenylalanine, N-formyl-3-methoxy- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C11 H13 N O4  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: RACT (Reactant or reagent)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 5 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 276874-37-4 REGISTRY  
 CN Benzeneacetamide, .alpha.-(formylamino)-.alpha.-methyl- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C10 H12 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: RACT (Reactant or reagent)

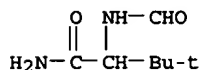


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1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

Search done by Noble Jarrell

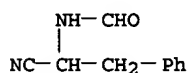
L5 ANSWER 6 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 276874-36-3 REGISTRY  
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 FS 3D CONCORD  
 MF C7 H14 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: RACT (Reactant or reagent)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

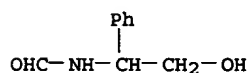
L5 ANSWER 7 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 276704-12-2 REGISTRY  
 CN Formamide, N-(1-cyano-2-phenylethyl)- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C10 H10 N2 O  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: RACT (Reactant or reagent)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 8 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 148054-73-3 REGISTRY  
 CN Formamide, N-(2-hydroxy-1-phenylethyl)- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C9 H11 N O2  
 SR CA  
 LC STN Files: BEILSTEIN\*, CA, CAPLUS  
 (\*File contains numerically searchable property data)  
 DT.CA Caplus document type: Journal; Patent  
 RL.P Roles from patents: RACT (Reactant or reagent)  
 RL.NP Roles from non-patents: RACT (Reactant or reagent)

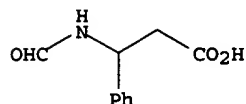


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 9 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 126575-05-1 REGISTRY  
 CN Benzenepropanoic acid, .beta.-(formylamino)- (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Benzenepropanoic acid, .beta.-(formylamino)-, (.+-.)-  
 DR 90922-44-4  
 MF C10 H11 N O3  
 CI COM

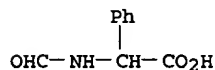
SR CA  
 LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT  
 (\*File contains numerically searchable property data)  
 DT.CA Caplus document type: Journal; Patent  
 RL.P Roles from patents: PREP (Preparation); RACT (Reactant or reagent)  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent);  
 NORL (No role in record)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

5 REFERENCES IN FILE CA (1907 TO DATE)  
 6 REFERENCES IN FILE CAPLUS (1907 TO DATE)

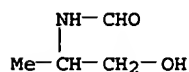
L5 ANSWER 10 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 67421-74-3 REGISTRY  
 CN Benzeneacetic acid, .alpha.-(formylamino)- (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Glycine, N-formyl-2-phenyl- (7CI)  
 FS 3D CONCORD  
 DR 29618-33-5  
 MF C9 H9 N O3  
 CI COM  
 LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, TOXCENTER, USPATFULL  
 (\*File contains numerically searchable property data)  
 DT.CA Caplus document type: Journal; Patent  
 RL.P Roles from patents: BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

10 REFERENCES IN FILE CA (1907 TO DATE)  
 10 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L5 ANSWER 11 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 64505-48-2 REGISTRY  
 CN Formamide, N-(2-hydroxy-1-methylethyl)- (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C4 H9 N O2  
 LC STN Files: BEILSTEIN\*, CA, CAPLUS, TOXCENTER  
 (\*File contains numerically searchable property data)  
 DT.CA Caplus document type: Journal; Patent  
 RL.P Roles from patents: RACT (Reactant or reagent)  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

3 REFERENCES IN FILE CA (1907 TO DATE)  
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 12 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
 RN 37289-08-0 REGISTRY



CN Deformylase, formylmethionylaminoacyl-transfer ribonucleate (9CI) (CA INDEX NAME)

## OTHER NAMES:

CN E.C. 3.5.1.27

CN Formylmethionyl-transfer RNA deacylase

CN N-Formylmethionyl-tRNA deformylase

DR 39369-20-5

MF Unspecified

CI MAN

LC STN Files: ADISNEWS, AGRICOLA, BIOSIS, CA, CAPLUS, CIN, TOXCENTER, USPAT2, USPATFULL

DT.CA Caplus document type: Journal; Patent

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); USES (Uses); NORL (No role in record)

## \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

30 REFERENCES IN FILE CA (1907 TO DATE)

30 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 13 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 27395-18-2 REGISTRY

CN Benzeneacetamide, .alpha.-(formylamino)- (9CI) (CA INDEX NAME)

## OTHER CA INDEX NAMES:

CN Acetamide, 2-formamido-2-phenyl- (8CI)

## OTHER NAMES:

CN NSC 360221

FS 3D CONCORD

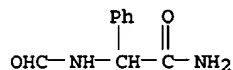
MF C9 H10 N2 O2

LC STN Files: BEILSTEIN\*, CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, USPATFULL (\*File contains numerically searchable property data)

DT.CA Caplus document type: Journal; Patent

RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: PREP (Preparation)



## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

4 REFERENCES IN FILE CA (1907 TO DATE)

4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 14 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 23950-49-4 REGISTRY

CN Formamide, N-[2-(1-naphthalenyl)ethyl]- (9CI) (CA INDEX NAME)

## OTHER CA INDEX NAMES:

CN Formamide, N-[2-(1-naphthyl)ethyl]- (6CI, 8CI)

FS 3D CONCORD

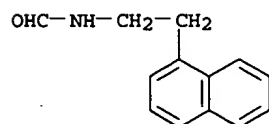
MF C13 H13 N O

LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, USPATFULL (\*File contains numerically searchable property data)

DT.CA Caplus document type: Journal; Patent

RL.P Roles from patents: RACT (Reactant or reagent)

RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent); NORL (No role in record)



## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

6 REFERENCES IN FILE CA (1907 TO DATE)  
6 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L5 ANSWER 15 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 22541-53-3 REGISTRY

CN Cobalt, ion (Co2+) (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Co2+

CN Cobalt cation (Co2+)

CN Cobalt dication

CN Cobalt ion(2+)

CN Cobalt(2+)

CN Cobalt(II) cation

CN Cobalt(II) ion

CN Cobaltous ion

MF Co

CI COM

LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CAPLUS, CASREACT, CEN, CIN, DETHERM\*, IFICDB, IFIPAT, IFIUDB, IPA, NIOSHTIC, PIRA, PROMT, TOXCENTER, USPAT2, USPATFULL

(\*File contains numerically searchable property data)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Co2+

6232 REFERENCES IN FILE CA (1907 TO DATE)  
322 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
6249 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 16 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 16397-91-4 REGISTRY

CN Manganese, ion (Mn2+) (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Manganese (Mn2+)

CN Manganese cation (Mn2+)

CN Manganese dication

CN Manganese ion(2+)

CN Manganese(2+)

CN Manganese(2+) ion

CN Manganese(II)

CN Manganese(II) ion

CN Manganous cation

CN Manganous dication

CN Manganous ion

CN Mn2+

MF Mn

LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CEN, CIN, DDFU, DETHERM\*, DRUGU, EMBASE, HSDB\*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, RTECS\*, TOXCENTER, USPAT2, USPATFULL

(\*File contains numerically searchable property data)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Search done by Noble Jarrell

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Mn<sup>2+</sup>

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

6479 REFERENCES IN FILE CA (1907 TO DATE)  
238 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
6491 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 17 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 15438-31-0 REGISTRY

CN Iron, ion (Fe<sup>2+</sup>) (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Fe<sup>2+</sup>  
CN Ferrous cation  
CN Ferrous ion  
CN Iron (Fe<sup>2+</sup>)  
CN Iron dication  
CN Iron divalent ion  
CN Iron ion(2+)  
CN Iron(2+)  
CN Iron(II) ion

MF Fe

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAPLUS, CASREACT, CEN, CHEMLIST, CIN, CSNB, DETHERM\*, EMBASE, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, RTECS\*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)

DT.CA Caplus document type: Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Fe<sup>2+</sup>

9640 REFERENCES IN FILE CA (1907 TO DATE)  
443 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
9671 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 18 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 14701-22-5 REGISTRY

CN Nickel, ion (Ni<sup>2+</sup>) (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Ni<sup>2+</sup>  
CN Nickel cation (Ni<sup>2+</sup>)

Search done by Noble Jarrell

CN Nickel dication  
CN Nickel ion(2+)  
CN Nickel(2+)  
CN Nickel(2+) ion  
CN Nickel(II)  
CN Nickel(II) cation  
CN Nickel(II) ion  
CN Nickelous ion  
MF Ni  
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CAPLUS, CASREACT, CEN, CIN, DDFU, DETHERM\*, DRUGU, HSDB\*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)  
DT.CA Caplus document type: Conference; Dissertation; Journal; Patent; Preprint; Report  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)  
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PRP (Properties); RACT (Reactant or reagent); USES (Uses)  
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RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Ni2+

5178 REFERENCES IN FILE CA (1907 TO DATE)  
289 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
5193 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 19 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 9054-98-2 REGISTRY  
CN Hydrolase, aminoacyl-transfer ribonucleate (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN Aminoacyl-tRNA hydrolase  
CN E.C. 3.1.1.29  
MF Unspecified  
CI MAN  
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOSIS, CA, CAPLUS, CIN, TOXCENTER, USPATFULL  
DT.CA Caplus document type: Journal; Patent; Report  
RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PRP (Properties)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

16 REFERENCES IN FILE CA (1907 TO DATE)  
17 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 20 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 9032-86-4 REGISTRY  
CN Deformylase, formylmethionine (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN E.C. 3.5.1.31  
CN Formylmethionine deformylase  
CN N-Formyl-L-methionine amidase  
MF Unspecified  
CI MAN  
LC STN Files: ADISNEWS, BIOSIS, CA, CAPLUS, CASREACT, CIN, TOXCENTER, USPAT2, USPATFULL  
DT.CA Caplus document type: Dissertation; Journal; Patent  
RL.P Roles from patents: BIOL (Biological study); MSC (Miscellaneous); PROC (Process); PRP (Properties); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); USES (Uses); NORL (No role in record)

Search done by Noble Jarrell

RLD.NP Roles for non-specific derivatives from non-patents: PREP  
(Preparation); PRP (Properties)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

56 REFERENCES IN FILE CA (1907 TO DATE)  
4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
56 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 21 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 9001-05-2 REGISTRY

CN Catalase (9CI) (CA INDEX NAME)

OTHER NAMES:

CN ASC Super

CN ASC Super 25

CN Caperase

CN Catzyme 50L

CN E.C. 1.11.1.6

CN Equilase

CN Fermcolase

CN Fermcolase 1000

CN HR 200S

CN Microcatalase

CN Optidase

CN Reyonet F 35

CN T 100

CN T 100 (enzyme)

CN Terminox 50L

CN Terminox Ultra

CN Terminox Ultra 10L

MF Unspecified

CI COM, MAN

LC STN Files: ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS,  
BIOSIS, BIOTECHNO, CA, CABA, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,  
CHEMINFORMRX, CHEMLIST, CIN, CSCHM, DDFU, DRUGU, EMBASE, IFICDB,  
IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, NIOSHTIC,  
PHAR, PIRA, PROMT, RTECS\*, TOXCENTER, ULIDAT, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)

Other Sources: EINECS\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent;  
Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);  
FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU  
(Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT  
(Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical  
study); BIOL (Biological study); PREP (Preparation); PROC (Process); PRP  
(Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological  
study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU  
(Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT  
(Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical  
study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU  
(Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT  
(Reactant or reagent); USES (Uses)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

27591 REFERENCES IN FILE CA (1907 TO DATE)  
351 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
27636 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L5 ANSWER 22 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 2130-87-2 REGISTRY

CN Formamide, N-(1-cyano-2-methylpropyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)

FS 3D CONCORD

MF C6 H10 N2 O

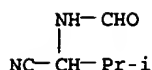
LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, IFICDB, IFIPAT,  
IFIUDB, USPATFULL

(\*File contains numerically searchable property data)

DT.CA Caplus document type: Journal; Patent

RL.P Roles from patents: PREP (Preparation); RACT (Reactant or reagent)

RL.NP Roles from non-patents: PREP (Preparation); NORL (No role in record)



## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

7 REFERENCES IN FILE CA (1907 TO DATE)  
 7 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L5 ANSWER 23 OF 23 REGISTRY COPYRIGHT 2004 ACS on STN

RN 64-18-6 REGISTRY

CN Formic acid (7CI, 8CI, 9CI) (CA INDEX NAME)

## OTHER NAMES:

CN Add-F

CN Ameisensaure

CN Aminic acid

CN Bilorin

CN Collo-Bueglatt

CN Collo-Didax

CN Formira

CN Formisoton

CN Formylic acid

CN Hydrogen carboxylic acid

CN Methanoic acid

CN Methanoic acid monomer

CN Myrmicyl

CN Sybest

CN Wonderbond Hardener M 600L

FS 3D CONCORD

DR 8006-93-7, 82069-14-5

MF C H2 O2

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB, DDFU, DETHERM\*, DIOGENES, DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HODOC\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM\*, PIRA, PROMT, PS, RTECS\*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



## \*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

31355 REFERENCES IN FILE CA (1907 TO DATE)  
 1233 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 31397 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> b wpiX

FILE 'WPIX' ENTERED AT 09:08:02 ON 01 DEC 2004  
 COPYRIGHT (C) 2004 THE THOMSON CORPORATION

FILE LAST UPDATED: 25 NOV 2004 <20041125/UP>  
 MOST RECENT DERWENT UPDATE: 200476 <200476/DW>  
 DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,  
 PLEASE VISIT:  
[http://www.stn-international.de/training\\_center/patents/stn\\_guide.pdf](http://www.stn-international.de/training_center/patents/stn_guide.pdf) <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE  
<http://thomsonderwent.com/coverage/latestupdates/> <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER  
 GUIDES, PLEASE VISIT:  
<http://thomsonderwent.com/support/userguides/> <<<

>>> NEW! FAST-ALERTING ACCESS TO NEWLY-PUBLISHED PATENT  
 DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX  
 FIRST VIEW - FILE WPIFV.  
 FOR FURTHER DETAILS: <http://www.thomsonderwent.com/dwpifv> <<<

>>> NEW DISPLAY FORMAT HITSTR ADDED ALLOWING DISPLAY OF  
 HIT STRUCTURES WITHIN THE BIBLIOGRAPHIC DOCUMENT <<<

>>> SMILES and ISOSMILES strings are no longer available as  
 Derwent Chemistry Resource display fields <<<

=> d all 16 tot

L6 ANSWER 1 OF 1 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN  
 AN 2000-414603 [36] WPIX  
 DNC C2000-125804  
 TI Enzymatic preparation of amino acid derivatives with enhanced optical  
 purity.  
 DC B04 B05 D16  
 IN QUAEDFLIEG, P J L M; SONKE, T; WAGNER, A F V  
 PA (STAM) DSM NV  
 CYC 91  
 PI EP 1013769 A1 20000628 (200036)\* EN 11 C12N015-55  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI  
 WO 2000037657 A1 20000629 (200036) EN C12N015-55  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
 OA PT SD SE SL SZ TZ UG ZW  
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES  
 FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS  
 LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL  
 TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 AU 2000018981 A 20000712 (200048) C12N015-55  
 EP 1141333 A1 20011010 (200167) EN C12N015-55  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI  
 JP 2002533086 W 20021008 (200281) 20 C12P041-00  
 ADT EP 1013769 A1 EP 1998-204371 19981222; WO 2000037657 A1 WO  
 1999-NL783 19991217; AU 2000018981 A AU 2000-18981 19991217; EP  
 1141333 A1 EP 1999-962575 19991217, WO 1999-NL783 19991217; JP  
 2002533086 W WO 1999-NL783 19991217, JP 2000-589711 19991217  
 FDT AU 2000018981 A Based on WO 2000037657; EP 1141333 A1 Based on WO  
 2000037657; JP 2002533086 W Based on WO 2000037657  
 PRAI EP 1998-204371 19981222  
 IC ICM C12N015-55; C12P041-00  
 ICS C12N009-78; C12P013-04  
 AB EP 1013769 A UPAB: 20000801  
 NOVELTY - The preparation of a compound with enhanced optical purity  
 comprising a mixture of enantiomers of a chiral compound (I) is new and  
 comprises bringing (I) into contact with an enzyme having peptide  
 deformylase activity with a bivalent metal ion as a cofactor and the metal

is a group 5-11 metal.

DETAILED DESCRIPTION - The preparation of a compound with enhanced optical purity comprising a mixture of enantiomers of a chiral compound (I) is new and comprises bringing (I) into contact with an enzyme having peptide deformylase activity with a bivalent metal ion as a cofactor and the metal is a group 5-11 metal:

R1 = alkyl or aryl;

R2 = H, alkyl or aryl;

Y = alkyl, aryl, (CH<sub>2</sub>)<sub>n</sub>COOH, (CH<sub>2</sub>)<sub>n</sub>-COOR, (CH<sub>2</sub>)<sub>n</sub>-CONR', CH<sub>2</sub>OH or C=N;

R and R' = H, alkyl, aryl; and

n = 0 or 1.

An INDEPENDENT CLAIM is also included for the preparation of a compound with enhanced optical purity comprising a mixture of enantiomers of a chiral compound (II) comprising subjecting (II) to a formylation reaction in the presence of an enzyme having peptide deformylase activity with a bivalent metal ion (especially a group 5-11 metal) as a cofactor and a formylating agent, where one of the enantiomers is selectively converted in the corresponding N-formyl compound:

R1 = alkyl or aryl;

R2 = H, alkyl or aryl;

Y = alkyl, aryl, (CH<sub>2</sub>)<sub>n</sub>COOH, (CH<sub>2</sub>)<sub>n</sub>COOR, (CH<sub>2</sub>)<sub>n</sub>CONRR'; CH<sub>2</sub>OH or C=N;

R and R' = H, alkyl, aryl; and

n = 0 or 1.

USE - The process is useful for the enzymatic preparation of a compound with enhanced optical purity.

ADVANTAGE - No advantages stated in the specification.

Dwg.0/0

FS CPI

FA AB; GI; DCN

MC CPI: B04-L05; B05-A02; B05-A03; B10-B02J; B10-C04E; D05-A02C; D05-C

=> b home

FILE 'HOME' ENTERED AT 09:08:28 ON 01 DEC 2004



=> b reg  
FILE 'REGISTRY' ENTERED AT 10:26:14 ON 01 DEC 2004  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 29 NOV 2004 HIGHEST RN 790629-40-2  
DICTIONARY FILE UPDATES: 29 NOV 2004 HIGHEST RN 790629-40-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more  
information enter HELP PROP at an arrow prompt in the file or refer  
to the file summary sheet on the web at:  
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d ide 123 tot

L23 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 37289-08-0 REGISTRY  
CN Deformylase, formylmethionylaminoacyl-transfer ribonucleate (9CI) (CA  
INDEX NAME)  
OTHER NAMES:  
CN E.C. 3.5.1.27  
CN Formylmethionyl-transfer RNA deacylase  
CN N-Formylmethionyl-tRNA deformylase  
DR 39369-20-5  
MF Unspecified  
CI MAN  
LC STN Files: ADISNEWS, AGRICOLA, BIOSIS, CA, CAPLUS, CIN, TOXCENTER,  
USPAT2, USPATFULL  
DT.CA Caplus document type: Journal; Patent  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);  
PREP (Preparation); PROC (Process); PRP (Properties); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological  
study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP  
(Properties); USES (Uses); NORL (No role in record)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
30 REFERENCES IN FILE CA (1907 TO DATE)  
30 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L23 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 9054-98-2 REGISTRY  
CN Hydrolase, aminoacyl-transfer ribonucleate (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN Aminoacyl-tRNA hydrolase  
CN E.C. 3.1.1.29  
MF Unspecified  
CI MAN  
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOSIS, CA, CAPLUS, CIN,  
TOXCENTER, USPATFULL  
DT.CA Caplus document type: Journal; Patent; Report  
RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES  
(Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological  
study); PREP (Preparation); PRP (Properties)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
16 REFERENCES IN FILE CA (1907 TO DATE)  
17 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L23 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 9032-86-4 REGISTRY  
CN Deformylase, formylmethionine (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN E.C. 3.5.1.31  
CN Formylmethionine deformylase

Search done by Noble Jarrell

CN N-Formyl-L-methionine amidase  
MF Unspecified  
CI MAN  
LC STN Files: ADISNEWS, BIOSIS, CA, CAPLUS, CASREACT, CIN, TOXCENTER,  
USPAT2, USPATFULL  
DT.CA CAPLUS document type: Dissertation; Journal; Patent  
RL.P Roles from patents: BIOL (Biological study); MSC (Miscellaneous); PROC  
(Process); PRP (Properties); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological  
study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP  
(Properties); USES (Uses); NORL (No role in record)  
RLD.NP Roles for non-specific derivatives from non-patents: PREP  
(Preparation); PRP (Properties)  
  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
56 REFERENCES IN FILE CA (1907 TO DATE)  
4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
56 REFERENCES IN FILE CAPLUS (1907 TO DATE)

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L40 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 7439-89-6 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN Iron (7CI, 8CI, 9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 300A  
CN 3ZhP  
CN 4100PO434  
CN A 131  
CN A 227  
CN AC 325  
CN Ancor B  
CN Ancor EN 80/150  
CN Ancor Image 100  
CN AQ 80  
CN Armco 80  
CN Armco iron  
CN ASC 300  
CN ASC 300 (metal)  
CN Atomel 300M200  
CN Atomel 500M  
CN Atomet 28  
CN Atomet 95  
CN Atomet 95G  
CN Atomet 95SP  
CN Atomiron 44MR  
CN Atomiron 5M  
CN Atomiron AFP 25  
CN Atomiron AFP 5  
CN ATW 230  
CN ATW 432  
CN BASF-EW  
CN Carbon 0.17, iron 99.83 (atomic)  
CN Carbonyl iron  
CN CM  
CN CM (iron)  
CN Copy Powder CS 105-175  
CN DH  
CN DKP  
CN DKP (metal)  
CN DM 96  
CN DM 96 (iron)  
CN DNK 2R  
CN DSP 1000  
CN DSP 128B  
CN DSP 135  
CN DSP 135C  
CN DSP 138  
CN EF 1000  
CN EF 250  
CN EFV  
CN EFV 200/300  
CN EFV 250  
CN EFV 250/400

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CN Electrolytic iron  
CN EO 5A  
CN ES  
CN ES (iron)  
CN F 60  
CN F 60 (metal)  
CN FEE  
CN Ferronyl  
CN Ferrovac E  
CN FT 3  
CN FT 3 (element)  
CN GS 6  
CN HF 2  
CN HF 2 (element)  
CN HL  
CN HL (iron)  
CN Hoeganaes ATW 230  
CN Hoeganaes EH  
CN HQ  
CN HQ (metal)  
CN HS  
CN HS (iron)  
CN HS 4849  
CN Iron element  
CN ISP 3700  
CN ISP-CIP-R 1470  
CN KG 200  
CN KIP 240M  
CN KIP 255MC  
CN KIP 270M  
CN KIP 300  
CN KIP 300A  
CN KIP 300AS  
CN KIP 300R  
CN KIP 304A  
CN KIP-MG 270H  
CN Loha  
CN MCK 1000  
CN Metalet  
CN Micropowder R 2430  
CN Micropowder S 1640  
CN MT 212  
CN NC 200  
CN NEPY  
CN OM Carbonyl Fe powder  
CN PZh 40M  
CN PZhO  
CN QMP Atomet 95G  
CN R 100  
CN R 100 (metal)  
CN R 842  
CN R 842 (iron)  
CN Raney iron  
CN RD 1  
CN RDL 300  
CN RKH  
CN RSI 325  
CN S 1641  
CN S 3700  
CN SCM-A 220  
CN Sicopur FF 4068  
CN Sicopur SE 0667  
CN SM  
CN ST 200R  
CN SU (iron)  
CN SUY-B 2  
CN SUYB 1  
CN TS 200R  
CN TSV 40  
CN TSV 50  
CN V 3  
CN V 3 (iron)  
DR 8011-79-8, 8053-60-9, 129048-51-7, 73135-38-3, 70884-35-4, 39344-71-3,  
190454-13-8, 195161-83-2, 199281-22-6, 443783-52-6, 675141-17-0  
MF Fe  
CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM\*, DIOGENES, DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS\*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB  
 (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Fe

## Experimental Properties (EPROP)

PROPERTY (CODE)	VALUE	CONDITION	NOTE
Density (DEN)	7.9 g/cm**3		(1) CAS
Density (DEN)	7.65 g/cm**3	Temp: Room Temp.	(2) CAS
Density (DEN)	7.45 g/cm**3	Temp: Room Temp.	(2) CAS
Density (DEN)	7.30 g/cm**3	Temp: Room Temp.	(2) CAS
Density (DEN)	7.254 g/cm**3		(3) CAS
Density (DEN)	7.008 g/cm**3		(3) CAS
Density (DEN)	6.9 g/cm**3	Temp: Room Temp.	(4) CAS
Electric Resistivity (EREST)	0.0001131 ohm*cm		(5) CAS
Electric Resistivity (EREST)	0.0000164 ohm*cm	Temp: Room Temp.	(4) CAS
Electric Resistivity (EREST)	0.0000011 ohm*cm		(5) CAS
Magnetic Moment (MM)	3.19 muB		(6) CAS
Magnetic Moment (MM)	3 muB		(7) CAS
Magnetic Moment (MM)	2.7 muB		(6) CAS
Magnetic Moment (MM)	2.54 muB		(6) CAS
Magnetic Moment (MM)	2.04 muB		(8) CAS
Tensile Strength (TS)	27300 MPa		(9) CAS
Tensile Strength (TS)	12700 MPa		(9) CAS
Tensile Strength (TS)	3000 MPa	Temp: Room Temp.	(10) CAS
Tensile Strength (TS)	1356-1433 MPa (Ultimate)		(11) CAS
Tensile Strength (TS)	250 MPa (Ultimate)	Temp: Room Temp.	(2) CAS
Tensile Strength (TS)	235 MPa (Ultimate)	Temp: Room Temp.	(2) CAS
Tensile Strength (TS)	233 MPa (Ultimate)	Temp: Room Temp.	(2) CAS
Tensile Strength (TS)	210 MPa (Ultimate)	Temp: Room Temp.	(2) CAS
Tensile Strength (TS)	200 MPa (Ultimate)	Temp: Room Temp.	(4) CAS

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Tensile Strength (TS)|152-445 MPa | (12) CAS

- (1) Akchurin, Kh. I.; RU 2232786 C2 2004 CAPLUS
- (2) Mamedov, A. T.; Materialy, Tekhnologii, Instrumenty 2002 V7(1) P98-101 CAPLUS
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- (4) Komatsu, Toshiyasu; Funtai oyobi Funmatsu Yakin 2003 V50(7) P584-592 CAPLUS
- (5) Richter, Friedhelm; Archiv fuer das Eisenhuettenwesen 1965 V36(11) P827-33 CAPLUS
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- (7) Davis, J. R.; Journal of Physics F: Metal Physics 1979 V9(1) PL7-L10 CAPLUS
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- (9) Friak, M.; Philosophical Magazine 2003 V83(31-34) P3529-3537 CAPLUS
- (10) Cheng, S.; Acta Materialia 2003 V51(15) P4505-4518 CAPLUS
- (11) Ichikawa, K.; Materials Science Forum 2003 V426-432(Pt. 3, THERMEC'2003) P2375-2380 CAPLUS
- (12) Mamedov, Arif T.; Powder Metallurgy and Metal Ceramics (Translation of Poroshkovaya Metallurgiya (Kiev)) 2003 V42(5-6) P245-248 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

403296 REFERENCES IN FILE CA (1907 TO DATE)  
 21280 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 403677 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d his

(FILE 'HOME' ENTERED AT 17:18:55 ON 01 DEC 2004)

FILE 'REGISTRY' ENTERED AT 17:19:36 ON 01 DEC 2004

L1 STR  
 L2 1 L1  
 L3 SCR 1377  
 L4 SCR 2039 OR 2041 OR 2050 OR 2049 OR 2048 OR 2053 OR 2052 OR 204  
 L5 50 L1 AND L3 NOT L4  
 L6 5850 L1 AND L3 NOT L4 FULL  
 SAV TEMP SHI088F0/A L6  
 L7 201 PEPTIDE (1A) DEFORMYLASE  
 L8 3 37289-08-0 OR 9054-98-2 OR 9032-86-4  
 L9 204 L7-8

FILE 'HCAPLUS' ENTERED AT 17:30:35 ON 01 DEC 2004

L10 7973 L6  
 L11 1509 L6 (L) RACT+NT/RL  
 L12 347 L9  
 L13 24 "E.C. 3.1.1.29" OR "EC3.1.1.29" OR (EC OR "E.C.") (1A) ("3.1.1.2  
 L14 1 HYDROLASE (1A) AMINOACYL(1A) (T OR TRANSFER) (1A) (RNA OR RIBON  
 E QUAEDFLIEG P/AU  
 L15 31 E4-7  
 E SONKE T/AU  
 L16 31 E3-5  
 E WAGNER A/AU  
 L17 568 E3,E9-11  
 E WAGNER ADOLF/AU  
 L18 43 E3-4  
 L19 4849 DSM/CS,PA  
 E METAL/CT  
 E GROUP 5/CT  
 E ESCHERICHIA COLI/CT  
 E E3+ALL  
 L20 QUE ESCHERICHIA COLI+OLD,NT/CT  
 L21 QUE (ESCHERICHIA OR E) (1A) COLI  
 L22 241 DEFORMYLASE (1A) (PEPTIDE OR FORMYLMETHIONYLAMINOACYL (1A) (T O  
 L23 30 L10-11 AND (L12 OR L13 OR L14 OR L22)  
 L24 6 L23 AND L15-19  
 L25 24 L23 NOT L24  
 L26 108 L20-21 (L) (L12 OR L13 OR L14 OR L22)  
 L27 21 L26 AND L10-11  
 L28 6 L27 AND L15-19  
 L29 15 L27 NOT L28  
 L30 6 L24 OR L28

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L31 24 L25 OR L29  
E GROUP 5/CT  
E E5+ALL  
E E2  
E E3+ALL  
L32 QUE GROUP VB ELEMENTS+NT/CT  
E GROUP 6/CT  
E E4+ALL  
E E2+ALL  
E GROUP 6/CT  
E E5+ALL  
E E2+ALL  
L33 QUE GROUP VIB ELEMENTS+NT/CT  
E GROUP VII/CT  
E E7+ALL  
E E2+ALL  
L34 QUE HALOGENS+NT/CT  
E GROUP VIII/CT  
E E1+ALL  
E E6  
E E3+ALL  
E GROUP VIII/CT  
E E21+ALL  
E E2+ALL  
E E6+ALL  
E GROUP VIII ELEMENTS+NT/CT  
L35 QUE GROUP VIII ELEMENTS+NT/CT  
E NOBLE METALS/CT  
E E3+ALL  
L36 QUE NOBLE METALS+OLD,NT/CT  
E GROUP IX/CT  
E GROUP 9/CT  
E E7+ALL  
E E2+ALL  
L37 131 L35 (L) GROUP (1A) (IX OR 9)  
E GROUP 10/CT  
E E9+ALL  
L38 171 L35 (L) GROUP (1A) (X OR 10)  
E GROUP 11/CT  
E E5+ALL  
E E2+ALL  
L39 QUE GROUP IB ELEMENTS+NT/CT  
  
FILE 'REGISTRY' ENTERED AT 17:51:26 ON 01 DEC 2004  
L40 1 IRON/CN  
  
FILE 'HCAPLUS' ENTERED AT 17:51:51 ON 01 DEC 2004  
L41 QUE L40 OR IRON OR FE OR FERR? OR ATOME# OR ATOMIRON OR MICROPO  
L42 3 L31 AND L32-41  
E GROUP 5/CT  
E E4+ALL  
E E2  
E E3+ALL  
L43 QUE GROUP VB ELEMENT COMPOUNDS+NT/CT  
E GROUP VI/CT  
E GROUP 7/CT  
E GROUP VII/CT  
E E17+ALL  
L44 QUE GROUP VIIB ELEMENT COMPOUNDS+NT/CT  
E GROUP VIII/CT  
L45 QUE GROUP VIII ELEMENT COMPOUNDS+NT/CT  
E GROUP IX/CT  
L46 26 L37-38 (L) COMPOUND?  
E GROUP XI/CT  
E GROUP 11/CT  
E E4+ALL  
E E2  
L47 QUE GROUP IB ELEMENT COMPOUNDS+NT/CT  
L48 1 L31 AND L43-47  
L49 4 L42 OR L48

=> b hcap

FILE 'HCAPLUS' ENTERED AT 17:59:31 ON 01 DEC 2004  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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FILE COVERS 1907 - 1 Dec 2004 VOL 141 ISS 23  
FILE LAST UPDATED: 30 Nov 2004 (20041130/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L30 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2000:441811 HCAPLUS  
DN 133:73257  
ED Entered STN: 30 Jun 2000  
TI Synthesis and recovery of aspartame involving enzymatic deformylation step  
IN Quaedflieg, Peter Jan Leonard Mario; Sonke, Theodorus;  
Wagner, Adolf Fritz Volker  
PA Holland Sweetener Company V.O.F., Neth.  
SO PCT Int. Appl., 43 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
IC ICM C07K005-06  
ICS C12N009-80  
CC 17-6 (Food and Feed Chemistry)  
Section cross-reference(s): 34  
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000037486	A1	20000629	WO 1999-NL787	19991220
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1013663	A1	20000628	EP 1998-204373	19981222
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	EP 1140982	A1	20011010	EP 1999-962579	19991220
	EP 1140982	B1	20030423		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	AT 238344	E	20030515	AT 1999-962579	19991220
	US 2002025549	A1	20020228	US 2001-886476	20010622
	US 6617127	B2	20030909		
	US 2004234944	A1	20041125	US 2003-624640	20030723
PRAI	EP 1998-204373	A	19981222		
	US 1999-119077P	P	19990208		
	WO 1999-NL787	W	19991220		
	US 2001-886476	A3	20010622		

# CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2000037486	ICM	C07K005-06
	ICS	C12N009-80
EP 1013663	ECLA	C07K005/06C1A1D; C12N009/80
US 2002025549	ECLA	C07K005/06C1A1D

AB The invention relates to the synthesis of aspartame involving enzymic deformylation of an N-formyl-.alpha.-L-aspartyl-L-phenylalanine compound by treatment with an enzyme having formylmethionyl peptide deformylase activity and having as a co-factor group 5 to 11

bivalent metal ions. The invention also relates to selective preparation and recovery of aspartame from a mixture of N -formyl-.alpha.- and .beta.-L-aspartyl-L-phenylalanine compds. by treatment with such enzyme. And finally, the invention relates to one-pot enzymic synthesis of aspartame from N -formyl-L-aspartic acid and L- or D,L-phenylalanine Me ester involving an enzymic deformylation reaction simultaneously with an enzymic coupling reaction, as well as to one-pot di- or oligopeptide synthesis by simultaneous enzymic coupling and deformylation reactions in general.

ST aspartame prepn enzymic deformylation  
 IT Amino acids, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (N-formyl-protected; synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT Formylation  
 (deformylation; synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT Cations  
 (divalent; synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT *Escherichia coli*  
 (formylmethionyl peptide deformylase from; synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT Stabilizing agents  
 (synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT 22839-47-0P, Aspartame  
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT 14701-22-5, uses 15438-31-0, uses 16397-91-4, Manganese (II), uses 22541-53-3, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT 7803-51-2D, Phosphine, trialkyl derivs. 37289-08-0, E.  
 C. 3.5.1.27 276874-39-6  
 278170-20-0 278170-21-1  
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT 2577-90-4, L-Phenylalanine methyl ester 19427-28-2, N-Formyl-L-aspartic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)  
 IT 13433-09-5P, .alpha.-L-Aspartyl-L-phenylalanine 33605-76-4P, N-Formyl-.alpha.-L-aspartyl-L-phenylalanine methyl ester 56633-51-3P, N-Formyl-.alpha.-L-aspartyl-L-phenylalanine  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE  
 (1) Cambiaghi, S; US 4668625 A 1987 HCAPLUS  
 (2) Kubo, K; US 4438201 A 1984 HCAPLUS  
 (3) Lilly Co Eli; WO 9602630 A 1996 HCAPLUS  
 (4) Monsanto Co; EP 0149594 A 1985 HCAPLUS  
 (5) Monsanto Co; WO 9803664 A 1998 HCAPLUS  
 (6) Rajagopalan; BIOCHEMISTRY 1997, V36, P13910 MEDLINE  
 (7) Umezawa, H; US 4745067 A 1988 HCAPLUS

L30 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:441468 HCAPLUS

DN 133:57692

ED Entered STN: 30 Jun 2000

TI Process for the preparation of optically active alpha-aminonitriles

IN Quadeflieg, Peter Jan Leonard Mario; Sonke, Theodorus;  
 Wagner, Adolf Fritz Volker; Broxterman, Quirinus Bernardus;  
 Boesten, Wilhelmus Hubertus Joseph

PA DSM N.V., Neth.

SO Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW



DT Patent  
 LA English  
 IC ICM C12P013-00  
 ICS C12P041-00; C12N009-80  
 CC 16-5 (Fermentation and Bioindustrial Chemistry)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1013773	A1	20000628	EP 1998-204370	19981222
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	WO 2000037668	A1	20000629	WO 1999-NL782	19991217
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1141369	A1	20011010	EP 1999-962574	19991217
	EP 1141369	B1	20030409		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002533091	T2	20021008	JP 2000-589721	19991217
	AT 236990	E	20030415	AT 1999-962574	19991217
	PT 1141369	T	20030829	PT 1999-962574	19991217
	ES 2196900	T3	20031216	ES 1999-962574	19991217
PRAI	EP 1998-204370	A	19981222		
	WO 1999-NL782	W	19991217		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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EP 1013773	ICM	C12P013-00
	ICS	C12P041-00; C12N009-80
EP 1013773	ECLA	C12P013/00; C12P041/00D2
WO 2000037668	ECLA	C12P013/00; C12P041/00D2

AB A process for the preparation of .alpha.-aminonitriles with enhanced optical purity from an enantiomeric mixture of N-formyl .alpha.-aminonitriles via the selective action of a **peptide deformylase** (PDF) is presented. In another embodiment of this invention, an .alpha.-aminonitrile with enhanced optical purity may be prepared by the selective formylation of a mixture of chiral enantiomers by PDF. In the framework of this invention, an .alpha.-aminonitrile is an .alpha.-amino acid with the carboxy group replaced with a cyano group and may derived from phenylglycine, phenylalanine, m-methoxy-phenylalanine, valine or .alpha.-methyl-phenylglycine. These .alpha.-aminonitriles are then formylated by formic acid or formic acid esters through the action of an acylase such as Pen-G or Pen-V acylase. A **peptide deformylase** such as E.C. 3.5

.1.27 or E.C. 3.

5.1.31 derived from *Escherichia*

*coli* or any other suitable microorganism may be used to perform

the conversion. The process claims any **peptide**

**deformylase** that contains the amino acid sequences of (1) HEXXH,

(2) EGCLS, and (3) GXGXAAXQ, which are strictly conserved motifs that fold

around the bivalent metal ion in the enzyme. It is preferred that the

native bivalent metal ion be removed from the PDF and replaced by a

bivalent metal ion from periodic groups 5-11 such as iron, nickel, cobalt,

or manganese. The process is enhanced when the PDF is stabilized by the

addition of catalase. Thus N-formyl-phenylalanine was deformylated by a

**formylmethionine deformylase** containing an iron metal ion

with an enantiomeric selectivity of 98.8%.

ST **peptide deformylase** prepn optically active aminonitriles

IT Nitriles, preparation

RL: PNU (Preparation, unclassified); PREP (Preparation)

(amino; process for the preparation of optically active alpha-aminonitriles)

IT Formylation

(deformylation; process for the preparation of optically active

alpha-aminonitriles)

IT *Escherichia coli*

(process for the preparation of optically active alpha-aminonitriles)

IT Formylation

(regioselective; process for the preparation of optically active

alpha-aminonitriles)  
 IT 9032-86-4, E.c.3.5.  
 1.31 37289-08-0, E.c.  
 3.5.1.27  
 RL: CAT (Catalyst use); USES (Uses)  
 (process for the preparation of optically active alpha-aminonitriles)  
 IT 10377-48-7, Lithium sulfate  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (process for the preparation of optically active alpha-aminonitriles)  
 IT 55379-75-4P 65451-12-9P, Pentanenitrile, 2-Amino-4-methyl-  
 276704-10-0P  
 RL: PNU (Preparation, unclassified); PREP (Preparation)  
 (process for the preparation of optically active alpha-aminonitriles)  
 IT 2130-87-2 276704-08-6 276704-12-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (process for the preparation of optically active alpha-aminonitriles)

L30 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2000:441465 HCAPLUS  
 DN 133:57691  
 ED Entered STN: 30 Jun 2000  
 TI Manufacture of amino acid derivatives with increased optical purity using  
 peptide deformylases  
 IN Quaedflieg, Peter Jan Leonard Mario; Sonke, Theodorus;  
 Wagner, Adolf Fritz Volker  
 PA DSM N.V., Neth.  
 SO Eur. Pat. Appl., 11 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C12N015-55  
 ICS C12P013-04; C12P041-00  
 CC 16-5 (Fermentation and Bioindustrial Chemistry)  
 Section cross-reference(s): 7  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1013769	A1	20000628	EP 1998-204371	19981222
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
WO 2000037657	A1	20000629	WO 1999-NL783	19991217
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1141333	A1	20011010	EP 1999-962575	19991217
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002533086	T2	20021008	JP 2000-589711	19991217
PRAI EP 1998-204371	A	19981222		
WO 1999-NL783	W	19991217		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1013769	ICM	C12N015-55
	ICS	C12P013-04; C12P041-00
EP 1013769	ECLA	C12P013/04; C12P041/00D2
WO 2000037657	ECLA	C12P013/04

OS MARPAT 133:57691

AB A process for the preparation of chiral compound R1R2C(NH2)Y [I; R1 = alkyl, aryl; R2 = H, R1; Y = alkyl, aryl, (CH2)nCOOH, (CH2)n-COOR, (CH2)n-CONRR', CH2OH, or CN (R and R' = independently H, alkyl, aryl; n = 0, 1)] with improved optical purity from an enantiomeric mixture of I using a peptide deformylase activity with a bivalent metal ion as a cofactor wherein the metal is chosen from the groups 5-11 of the periodic table. Alternatively, the enzyme can be used to prepare optically pure formyl esters using a formyl group donor. Preferably the peptide deformylase is chosen from the class EC 3.5.2.27 or EC 3.5.1.31, and contains the sequences of (i) HEXXH, (ii) EGCLS and (iii) GXGXAAXQ. The bivalent metal may be chosen from the group of Fe, Ni, Mn and Co,

preferably Ni or Fe. Expts. with a range of formyl esters yielded amino acid derivs. with ee's of 90-100%.

ST peptide deformylase amino acid chiral prepn formyl deriv

IT Resolution (separation)  
(enzymic, of formyl derivs. of amino acids; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT Amino acids, preparation  
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
(manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT Escherichia coli  
(peptide deformylase of; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 14701-22-5, Nickel dication, biological studies 15438-31-0, Ferrous ion, biological studies 16397-91-4, Manganese dication, biological studies 22541-53-3, Cobalt dication, biological studies  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(as cofactor for peptide deformylase; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 2130-87-2 23950-49-4 27395-18-2 64505-48-2  
67421-74-3 126575-05-1 148054-73-3  
276704-12-2 276874-36-3 276874-37-4  
276874-38-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(enzymic resolution of; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 9001-05-2, Catalase  
RL: MOA (Modifier or additive use); USES (Uses)  
(for stabilization of peptide formylases; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 9032-86-4, Peptide deformylase  
9054-98-2, Peptide deformylase  
37289-08-0, Peptide deformylase  
RL: CAT (Catalyst use); USES (Uses)  
(manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 64-18-6DP, Formic acid, amides, esters, preparation  
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)  
(preparation of optically active; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

IT 276874-39-6 278170-20-0 278170-21-1  
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
(protein motif of peptide formylases; manufacture of amino acid derivs. with increased optical purity using peptide deformylases)

L30 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:441386 HCAPLUS

DN 133:73256

ED Entered STN: 30 Jun 2000

TI Synthesis and recovery of aspartame involving enzymatic deformylation step

IN Quaedflieg, Peter Jan Leonard Mario; Sonke, Theodorus;  
Wagner, Adolf Fritz Volker

PA Holland Sweetener Company V.O.F., Neth.

SO Eur. Pat. Appl., 14 pp.  
CODEN: EPXXDW

DT Patent

LA English

IC ICM C07K005-06  
ICS C12N009-80

CC 17-6 (Food and Feed Chemistry)  
Section cross-reference(s): 34

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1013663	A1	20000628	EP 1998-204373	19981222
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, SI, LT, LV, FI, RO  
 WO 2000037486 A1 20000629 WO 1999-NL787 19991220  
 W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1140982 A1 20011010 EP 1999-962579 19991220  
 EP 1140982 B1 20030423  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO  
 AT 238344 E 20030515 AT 1999-962579 19991220  
 US 2002025549 A1 20020228 US 2001-886476 20010622  
 US ~~6617127~~ B2 20030909  
 US 2004234944 A1 20041125 US 2003-624640 20030723  
 PRAI EP 1998-204373 A 19981222  
 US 1999-119077P P 19990208  
 WO 1999-NL787 W 19991220  
 US 2001-886476 A3 20010622

CLASS  
 PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES  
 -----  
 EP 1013663 ICM C07K005-06  
 ICS C12N009-80  
 EP 1013663 ECLA C07K005/06C1A1D; C12N009/80  
 US 2002025549 ECLA C07K005/06C1A1D

AB Aspartame is synthesized by enzymic deformylation of an N-formyl-.alpha.-L-aspartyl-L-phenylalanine compound using an enzyme with formylmethionyl peptide deformylase activity and a cofactor chosen among group 5-11 bivalent metal ions.

ST aspartame synthesis deformylation; formylmethionyl peptide deformylase aspartame synthesis

IT Formylation  
 (deformylation; synthesis and recovery of aspartame involving enzymic deformylation step)

IT Cations  
 (divalent; synthesis and recovery of aspartame involving enzymic deformylation step)

IT Escherichia coli  
 (formylmethionyl peptide deformylase activity from; synthesis and recovery of aspartame involving enzymic deformylation step)

IT 22839-47-OP, .alpha.-L-Aspartyl-L-phenylalanine methyl ester  
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)

IT 9001-05-2, Catalase 9073-78-3, Thermolysin 14701-22-5, uses 15438-31-0, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)

IT 37289-08-0, E.C. 3.5. 1.27  
 RL: CAT (Catalyst use); FFD (Food or feed use); BIOL (Biological study); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)

IT 7803-51-2D, Phosphine, trialkyl derivs. 276874-39-6 278170-20-0 278170-21-1  
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)

IT 2577-90-4, L-Phenylalanine methyl ester 19427-28-2, N-Formyl-L-aspartic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (synthesis and recovery of aspartame involving enzymic deformylation step)

IT 33605-76-4P, N-Formyl-.alpha.-L-Aspartyl-L-phenylalanine methyl ester 56633-51-3P, N-Formyl-.alpha.-L-Aspartyl-L-phenylalanine  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(synthesis and recovery of aspartame involving enzymic deformylation step)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Hamao, U; US 4745067 A 1988 HCAPLUS
- (3) Katsuro, K; US 4438201 A 1984 HCAPLUS
- (4) Monsanto Co; EP 0149594 A 1985 HCAPLUS
- (5) Monsanto Co; WO 9803664 A 1998 HCAPLUS
- (6) Rajagopalan; Biochemistry 1997, V36, P13910 MEDLINE

L30 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:797694 HCAPLUS

DN 130:150294

ED Entered STN: 22 Dec 1998

TI Iron center, substrate recognition and mechanism of peptide deformylase

AU Becker, Andreas; Schlichting, Ilme; Kabsch, Wolfgang; Groche, Dieter; Schultz, Sabine; Wagner, A. F. Volker

CS Max-Planck-Institut für medizinische Forschung, Abteilung Biophysik, Heidelberg, 69120, Germany

SO Nature Structural Biology (1998), 5(12), 1053-1058  
CODEN: NSBIEW; ISSN: 1072-8368

PB Nature America

DT Journal

LA English

CC 7-5 (Enzymes)

Section cross-reference(s): 75

AB Eubacterial proteins are synthesized with a formyl group at the N-terminus which is hydrolytically removed from the nascent chain by the mononuclear Fe-containing enzyme, peptide deformylase (I). The catalytic efficiency strongly depends on the identity of the bound metal. Here, the authors determined by x-ray crystallog. the Fe<sup>2+</sup>, Ni<sup>2+</sup>, and Zn<sup>2+</sup> forms of *Escherichia coli* I and a crystal structure of I complexed with the reaction product, Met-Ala-Ser. The structure of the I complex, with the tripeptide bound at the active site, suggested detailed models for the mechanism of substrate recognition and catalysis. Differences in the protein structures due to the identity of the bound metal were extremely small and accounted only for the observation that Zn<sup>2+</sup> bound more tightly than Fe<sup>2+</sup> or Ni<sup>2+</sup>. The striking loss of catalytic activity of the Zn<sup>2+</sup> form could be caused by its reluctance to change between tetrahedral and 5-fold metal coordination believed to occur during catalysis.

ST peptide deformylase crystal structure mechanism active site

IT Enzyme functional sites  
(active; of peptide deformylase)

IT Crystal structure  
(of peptide deformylase and its complexes with substrate, product, and metal cofactors)

IT Conformation  
(protein; of peptide deformylase and its complexes with substrate, product, and metal cofactors)

IT 7439-89-6D, Iron, complexes with peptide deformylase, properties 7440-02-0D, Nickel, complexes with peptide deformylase, properties 7440-66-6D, Zinc, complexes with peptide deformylase, properties 9032-86-4D, Peptide deformylase, complexes with substrate, product, and metal cofactors 17351-32-5D, complexes with peptide deformylase and zinc 17351-33-6D, L-Methionyl-L-alanyl-L-serine, complexes with peptide deformylase and nickel

RL: PRP (Properties)  
(crystal structure of peptide deformylase complexes)

IT 9032-86-4, Peptide deformylase

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
(crystal structure, catalytic mechanism, and active site of peptide deformylase)

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Adams, J; J Mol Biol 1968, V33, P571 HCAPLUS
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L3 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:351158 HCAPLUS

DN 129:92093

ED Entered STN: 10 Jun 1998

TI Isolation and crystallization of functionally competent

*Escherichia coli* peptide deformylase

forms containing either iron or nickel in the active site

AU Groche, Dieter; Becker, Andreas; Schlichting, Ilme; Kabsch, Wolfgang;

Schultz, Sabine; Wagner, A. F. Volker

CS Biochemie-Zentrum Heidelberg, Ruprecht-Karls Universitat, Heidelberg, 69120, Germany

SO Biochemical and Biophysical Research Communications (1998), 246(2),

342-346

CODEN: BBRCA9; ISSN: 0006-291X

PB Academic Press

DT Journal

LA English

CC 7-2 (Enzymes)

AB Three metallo forms of peptide deformylase (PDF,

EC 3.5.1.31) of

*Escherichia coli* were prepared and crystallized (space group

C2, diffraction limit 1.9 .ANG.) for initiating the X-ray structure determination

of the metal center in correlation with the catalytic functionality of

this enzyme. The native Fe2+ containing enzyme species was directly isolated

from overproducing bacteria by using catalase as a buffer additive, which

stabilizes the catalytic activity against oxidative destruction. The Ni2+

containing form, which is oxygen-insensitive, was obtained by metal exchange

with free Ni2+ and found to be catalytically equally effective (kcat/KM =

105 M-1 s-1 for N-formyl-Met-Ala). The Zn2+ form, prepared from the

apoenzyme or by displacement of bound Ni2+ by free Zn2+, proved virtually

inactive.

ST peptide deformylase nickel deriv crystn *Escherichia*

IT Enzyme functional sites

(active; isolation and crystallization of functionally competent

*Escherichia coli* peptide

deformylase forms containing either iron or nickel in the active

site)

IT Enzyme kinetics

*Escherichia coli*

(isolation and crystallization of functionally competent *Escherichia*

*coli* peptide deformylase forms containing

either iron or nickel in the active site)

IT 7439-89-6, Iron, biological studies

RL: BAC (Biological activity or effector, except adverse); BOC (Biological

occurrence); BSU (Biological study, unclassified); BIOL (Biological

study); OCCU (Occurrence)

(isolation and crystallization of functionally competent *Escherichia*

*coli* peptide deformylase forms containing

either iron or nickel in the active site)

IT 7440-02-0, Nickel, biological studies 7440-66-6, Zinc, biological studies

CP 501, B x 3

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(isolation and crystallization of functionally competent *Escherichia coli* peptide deformylase forms containing either iron or nickel in the active site)

IT 9032-86-4P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)  
(isolation and crystallization of functionally competent *Escherichia coli* peptide deformylase forms containing either iron or nickel in the active site)

IT 15183-28-5, N-Formyl-methionylalanine

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(isolation and crystallization of functionally competent *Escherichia coli* peptide deformylase forms containing either iron or nickel in the active site)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Beisenherz, G; Z Naturf 1953, V8b, P555 HCAPLUS
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=> d all 149 tot

L49 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:430717 HCAPLUS

DN 140:429025

ED Entered STN: 27 May 2004

TI Peptide deformylase activated prodrugs

IN Ballatore, Carlo; Doppalapudi, Venkata Ramana; Sergeeva, Maria V.

PA Newbiotics, Inc., USA

SO PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM A61K

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 1

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004043400	A2	20040527	WO 2003-US36124	20031114
WO 2004043400	A3	20040930		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

Search done by Noble Jarrell

US 2004236096 A1 20041125 US 2003-714255 20031114  
 PRAI US 2002-426771P P 20021114  
 CLASS  
 PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES  
 -----  
 WO 2004043400 ICM A61K  
 OS MARPAT 140:429025  
 AB This invention provides compds. and methods for using them to inhibit the growth of a microorganism that expresses peptide deformylase. Drugs such as mitomycin, bleomycin, ciprofloxacin, can be bound to linkers.  
 ST peptide deformylase activated prodrug  
 IT Glycosides  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (amino; peptide deformylase activated prodrugs)  
 IT Antibiotics  
 (anthracycline; peptide deformylase activated prodrugs)  
 IT Antibiotics  
 (carbopenem; peptide deformylase activated prodrugs)  
 IT Nucleosides, biological studies  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (cytotoxic; peptide deformylase activated prodrugs)  
 IT Macrolides  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (epothilones; peptide deformylase activated prodrugs)  
 IT Chloramines  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (nitrogen mustards; peptide deformylase activated prodrugs)  
 IT Human  
 Microorganism  
 (peptide deformylase activated prodrugs)  
 IT Anthracyclines  
 Eneidyne  
 Glycopeptides  
 Macrolides  
 Sulfonamides  
 Taxanes  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (peptide deformylase activated prodrugs)  
 IT Antibiotics  
 (peptide; peptide deformylase activated prodrugs)  
 IT Ethers, biological studies  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (polyhalogenated biaryl; peptide deformylase activated prodrugs)  
 IT Drug delivery systems  
 (prodrugs; peptide deformylase activated prodrugs)  
 IT Antibacterial agents  
 (quinolone; peptide deformylase activated prodrugs)  
 IT Alkaloids, biological studies  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (vinca; peptide deformylase activated prodrugs)  
 IT 13721-01-2D, derivs., antibiotics antibiotics derivs.  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (Quinolone antibiotics; peptide deformylase activated prodrugs)  
 IT 101-02-0, Triphenylphosphite 123-38-6, Propanal, reactions 621-84-1, Benzyl carbamate 4289-98-9, N-Formylmethionine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (peptide deformylase activated prodrugs)  
 IT 65164-81-OP 691883-24-6P 691883-25-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (peptide deformylase activated prodrugs)  
 IT 691883-26-8P  
 RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (peptide deformylase activated prodrugs)  
 IT 50-07-7, Mitomycin C 50-44-2, 6-Mercaptopurine 52-53-9, Verapamil  
 54-05-7, Chloroquine 54-62-6, Aminopterin 55-56-1, Chlorohexidine  
 56-54-2, Quinidine 56-75-7, Chloramphenicol 56-75-7D, Chloramphenicol,



analogs 57-22-7, Vincristine 59-05-2, Methotrexate 60-54-8, Tetracycline 61-33-6D, derivs. 64-86-8, Colchicine 66-79-5, Oxacillin 68-41-7, Cycloserine 68-41-7D, Cycloserine, analogs 91-18-9D, Pteridine, analogs 97-24-5, Fentichlor 101-20-2 117-39-5, Quercetin 117-99-7D, 2-Hydroxybenzophenone, halo derivs. 130-95-0, Quinine 147-94-4, Cytosine arabinoside 148-82-3, Melphalan 334-22-5, Bis(2-chloroethyl)amine 446-72-0, Genistein 518-28-5, Podophyllotoxin 518-28-5D, Podophyllotoxin, analogs 528-74-5, Dichloromethotrexate 723-46-6, Sulfamethoxazole 738-70-5, Trimethoprim 801-52-5, Porfiromycin 865-21-4, Vinblastine 1121-31-9, 2-Mercaptopyridine N-oxide 1322-38-9, Tribromosalicylanilide 1322-40-3, Trichlorocarbanilide 1404-00-8, Mitomycin 2410-93-7, Methopterin 3380-33-4 3380-34-5, Triclosan 4623-98-7 7689-03-4, Camptothecin 11056-06-7, Bleomycin 11111-12-9, Cephalosporin 15228-71-4, Leurosidine 15663-27-1, Cisplatin 15764-52-0 20830-81-3, Daunorubicin 23214-92-8, Doxorubicin 23360-92-1, Leurosine 29098-85-9 33419-42-0, Etoposide 40277-05-2, 4-Hydroxycyclophosphamide 40748-44-5 50935-04-1 51667-26-6D, Oxazolidinone, derivs. 53643-48-4, Vindesine 67526-95-8, Thapsigargin 68902-57-8, Methioprim 69866-21-3, CC-1065 70458-96-7, Norfloxacin 81705-04-6, N-(4-Aminobutyl)-5-chloro-2-naphthalenesulfonamide 82855-09-2, Combretastatin 85721-33-1, Ciprofloxacin 100827-28-9, Erbstatin 104255-00-7 117091-64-2, Etoposide phosphate 130288-24-3, Duocarmycin sa 157207-90-4, Hemiasterlin 194874-06-1, Apoptolidin 342430-36-8 369636-51-1, Peptide deformylase 691883-23-5  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (peptide deformylase activated prodrugs)

✓ L49 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:903662 HCAPLUS

DN 140:159488

ED Entered STN: 19 Nov 2003

TI A new human peptide deformylase inhibitable by actinonin

AU Lee, Mona D.; Antczak, Christophe; Li, Yueming; Sirotnak, Francis M.; Bornmann, William G.; Scheinberg, David A.

CS Weill Graduate School of Medical Sciences, Department of Pharmacology, Cornell University, New York, NY, 10021, USA

SO Biochemical and Biophysical Research Communications (2003), 312(2), 309-315

CODEN: BBRCA9; ISSN: 0006-291X

PB Elsevier Science

DT Journal

LA English

CC 7-3 (Enzymes)

Section cross-reference(s): 1, 13

AB Peptide deformylases (PDFs) have been investigated as potential specific targets for antibiotics, but the possible existence of a functional human PDF (HsPDF) presents a potential hurdle to the design of specific drugs. We have expression cloned a HsPDF that has deformylase activity, although it is a slower and catalytically less active enzyme than bacterial or plant PDFs. A cobalt-substituted form of HsPDF (but not nickel or zinc) is active, and the enzyme appears to be active at a pH between 6.0 and 7.2, a temperature range of 25-50.degree., and in a low KCl ionic strength buffer. Actinonin inhibits HsPDF activity with an IC50 of 43 nM and kills Daudi and HL60 human cancer cell lines with an LC50 of 5.3 and 8.8 .mu.M, resp. The inhibition of HsPDF may provide an explanation for the mechanism by which actinonin is cytotoxic against various human tumor cell lines.

ST peptide deformylase inhibition actinonin cobalt

IT Human

(actinonin can inhibit human peptide deformylase)

IT Michaelis constant

(kinetic parameters of peptide deformylase)

IT Enzyme kinetics

(of inhibition; kinetic parameters of inhibition of peptide deformylase)

IT 7440-48-4, Cobalt, biological studies 17351-32-5

59880-97-6 369636-51-1, Peptide

deformylase 654633-90-6

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(actinonin can inhibit human peptide deformylase)

IT 13434-13-4, Actinonin

RL: BSU (Biological study, unclassified); PKT (Pharmacokinetics); THU

(Therapeutic use); BIOL (Biological study); USES (Uses)

(actinonin can inhibit human peptide deformylase)

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L49 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:184391 HCAPLUS

DN 136:365707

ED Entered STN: 15 Mar 2002

TI Crystals of Peptide Deformylase from Plasmodium  
falciparum Reveal Critical Characteristics of the Active Site for Drug  
Design

AU Kumar, Abhinav; Nguyen, Kiet T.; Srivathsan, Sumant; Ornstein, Brad;  
Turley, Stewart; Hirsh, Irwin; Pei, Dehua; Hol, Wim G. J.

CS University of Washington, Howard Hughes Medical Institute, Seattle, WA,  
98195, USA

SO Structure (Cambridge, MA, United States) (2002), 10(3), 357-367  
CODEN: STRUE6; ISSN: 0969-2126

PB Cell Press

DT Journal

LA English

CC 7-5 (Enzymes)

Section cross-reference(s): 75

AB Peptide deformylase catalyzes the deformylation  
reaction of the amino terminal fMet residue of newly synthesized proteins  
in bacteria, and most likely in Plasmodium falciparum, and has therefore  
been identified as a potential antibacterial and antimalarial drug target.  
The structure of P. falciparum peptide deformylase,  
determined at 2.8 Å resolution with ten subunits per asym. unit, is similar to the  
bacterial enzyme with the residues involved in catalysis, the position of  
the bound metal ion, and a catalytically important water structurally  
conserved between the two enzymes. However, critical differences in the  
substrate binding region explain the poor affinity of E.  
coli deformylase inhibitors and substrates toward the Plasmodium  
enzyme. The Plasmodium structure serves as a guide for designing novel  
antimalarials.

ST peptide deformylase Plasmodium active site crystal  
structure

- IT Enzyme functional sites  
(active; crystal structure reveals Ile105 and Tyr125 residues of Plasmodium falciparum peptide deformylase determine size of active site for binding of substrates and inhibitors)
- IT Protein sequences  
(alignment; Plasmodium falciparum peptide deformylase shows 28% homol. to Escherichia coli peptide deformylase)
- IT Ion pairs  
Plasmodium falciparum  
(crystal structure reveals Ile105 and Tyr125 residues of Plasmodium falciparum peptide deformylase determine size of active site for binding of substrates and inhibitors)
- IT Conformation  
(loop, protein; crystal structure reveals Ile105 and Tyr125 residues of Plasmodium falciparum peptide deformylase determine size of active site for binding of substrates and inhibitors)
- IT Crystal structure  
(of Plasmodium falciparum native and selenomethionine peptide deformylase)
- IT 60-18-4, L-Tyrosine, biological studies 73-32-5, Isoleucine, biological studies 1464-42-2, Selenomethionine 7440-48-4, Cobalt, biological studies 369636-51-1, Peptide deformylase  
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
(crystal structure reveals Ile105 and Tyr125 residues of Plasmodium falciparum peptide deformylase determine size of active site for binding of substrates and inhibitors)
- IT 4289-98-9  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(crystal structure reveals Ile105 and Tyr125 residues of Plasmodium falciparum peptide deformylase determine size of active site for binding of substrates and inhibitors)

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L49 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2001:911832 HCAPLUS  
 DN 137:17044  
 ED Entered STN: 18 Dec 2001  
 TI Characterization of an Eukaryotic Peptide Deformylase  
 from Plasmodium falciparum  
 AU Bracchi-Ricard, Valerie; Nguyen, Kiet T.; Zhou, Ying; Rajagopalan, P. T.  
 Ravi; Chakrabarti, Debopam; Pei, Dehua  
 CS Department of Molecular Biology & Microbiology, University of Central  
 Florida, Orlando, FL, 32816, USA  
 SO Archives of Biochemistry and Biophysics (2001), 396(2), 162-170  
 CODEN: ABBIA4; ISSN: 0003-9861  
 PB Academic Press  
 DT Journal  
 LA English  
 CC 7-2 (Enzymes)  
 Section cross-reference(s): 3, 10  
 AB Ribosomal protein synthesis in eubacteria and eukaryotic organelles  
 initiates with an N-formylmethionyl-tRNAi, resulting in N-terminal  
 formylation of all nascent polypeptides. Peptide  
 deformylase (PDF) catalyzes the subsequent removal of the  
 N-terminal formyl group from the majority of bacterial proteins. Until  
 recently, PDF has been thought as an enzyme unique to the bacterial  
 kingdom. Searches of the genomic DNA databases identified several genes  
 that encode proteins of high sequence homol. to bacterial PDF from  
 eukaryotic organisms. The cDNA encoding Plasmodium falciparum PDF (PfPDF)  
 has been cloned and overexpressed in Escherichia coli.  
 The recombinant protein is catalytically active in deformylating  
 N-formylated peptides, shares many of the properties of bacterial PDF, and  
 is inhibited by specific PDF inhibitors. Western blot anal. indicated  
 expression of mature PfPDF in trophozoite, schizont, and segmenter stages  
 of intraerythrocytic development. These results provide strong evidence  
 that a functional PDF is present in P. falciparum. In addition, PDF  
 inhibitors inhibited the growth of P. falciparum in the intraerythrocytic  
 culture. (c) 2001 Academic Press.  
 ST Plasmodium peptide deformylase characterization  
 expression; inhibitor peptide deformylase Plasmodium;  
 intraerythrocytic development peptide deformylase  
 expression Plasmodium  
 IT Enzyme kinetics  
 Plasmodium falciparum  
 (characterization of an eukaryotic peptide  
 deformylase from Plasmodium falciparum)  
 IT Peptides, biological studies  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (deformylation of; characterization of an eukaryotic peptide  
 deformylase from Plasmodium falciparum)  
 IT tRNA  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (formylmethionyl; characterization of an eukaryotic peptide  
 deformylase from Plasmodium falciparum)  
 IT 433738-56-8  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
 (Biological study)  
 (amino acid sequence; characterization of an eukaryotic peptide  
 deformylase from Plasmodium falciparum)  
 IT 7439-89-6, Iron, biological studies 7440-02-0,  
 Nickel, biological studies 7440-48-4, Cobalt, biological studies  
 7440-66-6, Zinc, biological studies 369636-51-1, Peptide  
 deformylase  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (characterization of an eukaryotic peptide  
 deformylase from Plasmodium falciparum)  
 IT 15183-28-5 111150-07-3 433263-68-4 433263-72-0  
 433263-78-6  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
 (Biological study)  
 (characterization of an eukaryotic peptide  
 deformylase from Plasmodium falciparum)  
 IT 13434-13-4, Actinonin 268217-97-6  
 RL: BUU (Biological use, unclassified); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)  
 (inhibitor of peptide deformylase; characterization  
 of an eukaryotic peptide deformylase from  
 Plasmodium falciparum)

RE.CNT 45      THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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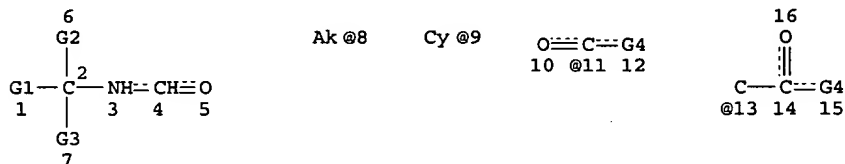
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<http://www.cas.org/ONLINE/DBSS/registryss.html>

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 L1 STR



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 @17 18

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 VAR G2=H/8/9  
 VAR G3=8/9/11/13/17/CN  
 VAR G4=N/O  
 NODE ATTRIBUTES:  
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 L4 SCR 2039 OR 2041 OR 2050 OR 2049 OR 2048 OR 2053 OR 2052 O  
 R 2043 OR 2054  
 L6 5850 SEA FILE=REGISTRY SSS FUL L1 AND L3 NOT L4

100.0% PROCESSED 43721 ITERATIONS 5850 ANSWERS  
 SEARCH TIME: 00.00.01

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